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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,904	11/21/2003	Minoru Niigaki	046124-5253	7368
55694	7590	06/30/2006	EXAMINER	
DRINKER BIDDLE & REATH (DC) 1500 K STREET, N.W. SUITE 1100 WASHINGTON, DC 20005-1209			GABOR, OTILIA	
			ART UNIT	PAPER NUMBER
			2884	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/717,904

Applicant(s)

NIIGAKI ET AL.

Examiner

Otilia Gabor

Art Unit

2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. The amendment filed 04/28/2006 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly included subject matter that "each energy gap of said n-type nitride semiconductor layer and p-type nitride semiconductor layer is equal to or larger than the energy gap of said photoabsorption layer" constitutes new matter because the disclosure of the specification fails to include any relationship between the energy gap of the semiconductor layers and the energy gap of the photoabsorption layer. If the inventor is relying on the specification as quoted from page 1, line 23 to page 3, line 3 to supply the missing description, which only discloses the semiconductor and photoabsorption layer materials and the transmittance of the selective wavelengths, which is nothing more than what was and is claimed in claims 1,

3 and 4, then the prior art (Kozodoy and Starikov) that was used to reject those claims also disclose this limitation.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosodoy (6,265,727) or Starikov (6,608,360).

Kozodoy discloses a UV sensor system (detects wavelength less than 300 nm), the system comprising: an incident light window (52) constituting part of the container wall (51); a p-i-n – type photodiode disposed inside the container (51) and employed for photoelectrically converting the light (56) that was transmitted through the light window

(52); where the incident light window is made of glass and the photodiode comprises a photoabsorption layer (i-layer) formed from $\text{In}_y\text{Ga}_{(1-y)}\text{N}$ (see Col.4, lines 18-31 where when $x=0$, Al is not present in the formula and therefore the only remaining elements are In, Ga and N in the above presented ratios), where $0 \leq y \leq 1$; and the photoabsorption layer is positioned between an n-type nitride semiconductor layer (n-type GaN layer) and a p-type nitride semiconductor layer (p-type GaN layer). See Figs.1 and 5 and corresponding descriptions. Kozodoy also discloses that the energy gap of the active region is at least equal to one or both of the n or p-type regions.

Regarding claim 4 Kozodoy discloses that the detector is sensitive to wavelengths less than 300 nm and therefore (inherently) it's sensitivity is the same (so not more than 1/100) for both 365 and 405 nm.

Starikov discloses a UV sensor comprising: an incident light window (12) made of glass through which the incident light enters the detector and hits a p-i-n- type photodiode formed of a photoabsorption layer made of $\text{In}_x\text{Ga}_{(1-x)}\text{N}$ (42) (where $0 < x < 0.2$) and positioned between an n-type nitride semiconductor layer (40) and a p-type nitride semiconductor layer (44). Starikov discloses that the thickness and composition of these layers can be modified according to the desired wavelength sensitivity (one embodiment allows for same sensitivity in the 345-600 nm range). See figs. 1-4, 7 and corresponding descriptions.

Regarding claims 1 and 2 neither Kozodoy nor Starikov specifically disclose a borosilicate window with a thickness of 200 nm or more, however since none put a limit as to the type of glass to be used and the window thickness it would have been obvious

to use borosilicate glass and to use the claimed thickness since the modification would have involved a mere change in the size of a component which has been held to be within the level of ordinary skill in the art (*In re Rose*, 105 USPQ 237 (CCPA 1955)), and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233), and because using a readily available material for its suitability involves only routine skill in the art.

Response to Arguments

7. Applicant's arguments filed 04/28/2006 have been fully considered but they are not persuasive. The main argument presented by the Applicant is that the newly introduced limitation that relates the energy gaps of the n and p-type semiconductor layers and the energy gap of the photoabsorption layer is not present in Kozodoy. This argument, however is not persuasive because 1) it fails under the 35 USC 112 for it represents new matter which is not supported by the specification (see rejection above) and 2) Kozodoy does disclose (as admitted in the response on page 12) that the energy gap of the active region (photoabsorption region) is of one or both of the n-type or p-type regions, which means that the energy gap of the photabsorption region is at least equal to the energy gap of the n-type and p-type semiconductor regions, which is what the claim asks for, and 3) Starikov clearly discloses this limitation (as admitted by Applicant on page 13 of the response).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otilia Gabor whose telephone number is 571-272-2435. The examiner can normally be reached on Monday-Friday between 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2884

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Otilia Gabor
Primary Examiner
Art Unit 2884

A handwritten signature in black ink, appearing to read 'Otilia Gabor', written in a cursive style.

OTILIA GABOR
PRIMARY EXAMINER